

IN THE CLAIMS:

1. (Currently amended) A process for making a hydrogel comprising 10-90 wt% water, 10-60 wt% of a cross-linked hydrophilic polymer made from at least one starting monomer type, and 10-80 wt% of at least one polyol, ~~characterized in that~~ wherein said process comprises the steps of

1) a) preparing ~~said a~~ starting ~~monomer(s)~~ monomer solution from 10-90 wt% water, ~~from~~ 10-60 wt% of said starting ~~monomer(s)~~ monomer, and ~~from~~ 10-80 wt% of said ~~polyol(s)~~ polyol, and adding a modifying compound ~~in~~ to said monomer solution prior to polymerization of the so formed mixture ~~and thereafter~~, then

2) b) polymerizing said ~~monomer(s)~~ monomer within a reaction medium comprising ~~from~~ 10-90 wt% water, ~~from~~ 10-60 wt% of said starting ~~monomer(s)~~ monomer, and ~~from~~ 10-80 wt% of said ~~polyol(s)~~ polyol, in the presence of the modifying compound to ~~thereby~~ form a hydrogel,

wherein the modifying compound is selected from the group consisting of ~~thiols, sulfites, meta-bisulfites and bisulfites~~ a thiol, a sulfite, a meta-bisulfite, and a bisulfite.

2. (Currently amended) A The process ~~according to~~ of claim 1 wherein the modifying compound is added directly to the monomer solution before the polymerization ~~preferably~~ in a stirring vessel, a tube, or a static mixer.

3. (Currently amended) A The process ~~according to~~ of claim 1 ~~or~~ 2 wherein in addition to the modifying compound, a scavenger compound is added to the monomer solution.

4. (Currently amended) A The process ~~according to~~ of claim 1 ~~—~~ 3 wherein in addition to the modifying compound, a chain transfer agent is added to the monomer solution.

5. (Currently amended) A The process ~~according to~~ of claim 1 ~~—~~ 4 wherein in addition to the modifying compound, a scavenger compound and a chain transfer agent ~~is~~ are added to the monomer solution.

6. (Currently amended) A The process ~~according to~~ of claim 1 ~~—~~ 5 wherein ~~the~~ a residual ~~monomer(s)~~ monomer concentration in the hydrogel product of step 1), ~~is~~ below 10000 ppm, ~~preferably~~ below 1000 ppm, ~~more preferably~~ below 500 ppm, ~~even more preferably~~ below 200 ppm, ~~and most preferably~~ below 10 ppm.

7. (Currently amended) A The process ~~according to~~ of claim 1 ~~—~~ 6 wherein the polymerization of said starting ~~monomer(s)~~ monomer is conducted at a pH 3.5 to 7, ~~preferably~~ 4 to 6.5, ~~more preferably~~ 4.5 to 6.

8. (Currently amended) A The process ~~according to~~ claims 1-7 of claim 1 wherein said hydrogel comprises 20-70 wt% water.

9. (Currently amended) A The process ~~according to claims 1-8 of claim 1~~ wherein said adding a the modifying compound ~~in step 1)~~ comprises adding to the said monomer ~~premix~~ solution a nucleophile which reacts with said residual starting ~~monomer(s), im-~~ monomer, impurity, by- product, or mixture thereof by an addition reaction.

10. (Currently amended) A The process according to ~~claims 1-9~~ claim 9 wherein said ~~by-~~ product(s) comprise by-product comprises an α, β -unsaturated ~~carbonyl(s)~~ carbonyl produced from said ~~polyol(s)~~ polyol.

11. (Currently amended) A The process ~~according to~~ of claim 10 wherein said polyol ~~is~~ comprises glycerol.

12. (Currently amended) A The process ~~according to claims 1-11 of claim 11~~ wherein said ~~by-~~ product(s) comprise by-product comprises acrolein.

13. (Currently amended) A The process ~~according to~~ of claim 9 wherein the bisulfite is present in ~~amounts~~ an amount of less than 30000 ppm, ~~preferably less than 10000 ppm, more preferably less than 5000 ppm, most preferably less than 1000 ppm,~~ with respect to the hydrogel product ~~of step 1)~~.

14. (Currently amended) A The process ~~according to claims 1-13 of claim 1~~ wherein the polymerization of said starting ~~monomer(s)~~ monomer is conducted at least partly by UV irradiation.

15. (Currently amended) A The process ~~according to claim 1-14 of claim 1~~ wherein said reaction medium comprises a photoinitiator.

16. (Currently amended) A The process ~~according to~~ of claim 15 wherein said photoinitiator is selected from the group consisting of ~~Darocur 1173, Irgacure 2959, Irgacure 500, and Irgacure 184~~ 2-hydroxy-2-methyl-propiophenone, 4-(2-hydroxyethoxy)-phenyl-(2-hydroxy-2-methylpropyl) ketone, Irgacure 500, and 1-hydroxycyclohexyl phenyl ketone.

17. (Currently amended) A The process ~~according to~~ of claim 16 wherein said photoinitiator is used in said ~~reaction medium~~ monomer solution at a concentration less than 5 wt%, ~~preferably less than 1 wt%, more preferably less than 0.5 wt%, and most preferably less than 0.4 wt%.~~

18. (Currently amended) A The process ~~according to~~ of claim 1 wherein the polymerization is conducted by UV curing, and ~~the~~ an integrated UV intensity at wavelengths less than 280 nm, ~~preferably less than 300 nm, more preferably less than 320 nm~~ is less than 10%, ~~preferably less than 7%, even more preferably less than 4%, most preferably less than 1%~~ of the total integrated UV intensity with wavelengths less than 400 nm.

19. (Currently amended) A The process ~~according to~~ of claim 18 wherein said polymerization is carried out under a total UVA energy ranging from 0.1-30 J/cm², ~~preferably from 0.1-25 J/cm², more preferably from 1-20 J/cm².~~

20. (Currently amended) A The process ~~according to claims 1-19~~ of claim 1 wherein said starting monomer(s) ~~comprise~~ monomer comprises acrylic acid.

21. (Currently amended) A The process ~~according to claims 1-20~~ of claim 1 wherein said hydrogel is adhesive.

22. (Currently amended) A The process ~~according to claims 1-20~~ of claim 1 wherein said hydrogel has a tan δ_{25} between 0.03 and 3.

23. (Currently amended) A hydrogel ~~obtainable~~ prepared by a the process of ~~one of claims~~ claim 1 ~~to 22.~~

24. (Currently amended) A hydrogel comprising 10-90 wt% water, 10-60 wt% of a cross-linked hydrophilic polymer made from starting monomer(s), and 10-80 wt% of a at least one polyol, said hydrogel ~~being~~ prepared by polymerizing said starting monomer(s) in the presence of said water and polyol(s), ~~characterized in that wherein~~ said hydrogel contains less than 100 ppb, ~~preferably less than 50 ppb, and most preferably less than 20 ppb~~ of α,β -unsaturated carbonyl by-product(s) derived from said polyol(s) during polymerization.

25. (Currently amended) A The hydrogel ~~according to~~ of claim 25 where said α,β -unsaturated carbonyl by-product comprises acrolein.

26. (Cancelled)

27. (New) The process of claim 1 wherein the residual monomer concentration is below 500 ppm.

28. (New) The process of claim 1 wherein the residual monomer concentration is below 10 ppm.

29. (New) The process of claim 1 wherein the polymerization of said starting monomers is conducted at pH 4.5 to 6.

30. (New) The process of claim 9 wherein the bisulfite is present in an amount of less than 10,000 ppm with respect to the hydrogel product.

31. (New) The process of claim 9 wherein the bisulfite is present in an amount of less than 1,000 ppm with respect to the hydrogel product.

32. (New) The process of claim 16 wherein the photoinitiator is used is said monomer solvate at a concentration less than 1 wt%.

33. (New) The process of claim 16 wherein the photoinitiator is used is said monomer solvate at a concentration less than 0.4 wt%.

34. (New) The method of claim 18 wherein the integrated UV intensity at wavelengths less than 320 nm is less than 1% of the total integrated UV intensity with wavelengths less than 400 nm.

35. (New) The hydrogel of claim 24 wherein said hydrogel contains less than 20 ppb of α,β -unsaturated carbonyl by-product(s).